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10/584,262	06/26/2006	Toshihiro Iwakuma	292935US0PCT	5686

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EXAMINER	
WILSON, MICHAEL H	

ART UNIT	PAPER NUMBER
1794	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/584,262	IWAKUMA ET AL.	
	Examiner	Art Unit	
	MICHAEL WILSON	1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 December 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. This Office action is in response to Applicant's amendment filed 22 December 2009, which amends claims 1-7 and adds new claim12.

Claims 1-12 are pending.

2. The objection to claim 4 is objected because of informalities is withdrawn due to applicant's amending of the claims in the reply filed 22 December 2009.

3. The rejection of under 35 U.S.C. 112, second paragraph of claims 1-11, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention is overcome due to applicant's amending of the claims in the reply filed 22 December 2009.

4. The rejection under 35 U.S.C. 102(b) of claims 1, 3-8, 10, and 11 as being anticipated by Hosokawa et al. (US 2002/0048687 A1), is overcome due to Applicant's amending of the claims in the reply filed 22 December 2009.

5. The rejection(s) under 35 U.S.C. 103(a) of claim 9 as being unpatentable over Hosokawa et al. (US 2002/0048687 A1) in view of Baldo et al. (Very high-efficiency green organic light-emitting devices based on electrophosphorescence.) is overcome due to applicant's amending of the claims in the reply filed 22 December 2009.

6. The rejection(s) under 35 U.S.C. 103(a) of claims 1, 2, and 5-9 as being unpatentable over Taguchi (JP-2002/30887 A) is overcome due to applicant's amending of the claims in the reply filed 22 December 2009.

7. The rejection(s) under 35 U.S.C. 103(a) of claims 10 and 11 as being unpatentable over Taguchi (JP-2002/30887 A) in view of Hosokawa et al. (US 2002/0048687 A1) is overcome due to applicant's amending of the claims in the reply filed 22 December 2009.

Claim Objections

8. Claim 12 is objected to because of the following informalities:

Regarding claim 12, "at least *on* of Ar_1" should read --at least *one* of Ar1--.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

11. Claims 1 and 3-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hosokawa (US 6,660,410).

Regarding claims 1, 5-9, and 12, Hosokawa discloses an organic electroluminescent device comprising a light-emitting layer with a phosphorescent metal complex (column 23, lines 11-45) between an anode and a cathode (column 2, lines 55-65). The light-emitting layer is disclosed to comprise a carbazole derivative compound (column 2, lines 61-64) of formula (4) as a host material (column 4, lines 46-49). The compound of formula (4) meets instant formula (1) wherein Ar^{12} and Ar^{13} are groups of formula (5) wherein q is 1 and 2, respectively, Ar^{14} is an aryl group, and Z is a tri-substituted phenyl group (columns 3 and 4) and discloses the phenyl as 1,3,5-substituted (columns 15 and 16). This corresponds wherein instant Ar_2 is m-phenylene and instant Ar_1, Ar_3 and Ar_4 each p-phenylenes. While Hosokawa does not specifically exemplify compound as described above, this does not negate a finding of obviousness under 35 USC 103 since a preferred embodiment such as an example is not controlling. Rather, all disclosures "including unpreferred embodiments" must be considered. *In re Lamberti* 192 USPQ 278, 280 (CCPA 1976) citing *In re Mills* 176 USPQ 196 (CCPA 1972). Therefore, it would have been obvious to one of ordinary skill in the art to utilize such a compound given that Hosokawa teaches each one to be suitable.

Additionally the reference teaches carbazole derivatives wherein instant A is a single bond, ethylene, and oxygen as equivalent and interchangeable (column 16). Therefore given Hosokawa's recognition that instant A's of a single bond, ethylene, and oxygen are equivalent and interchangeable, it would have been obvious to one of

ordinary skill in the art to substitute a carbazole wherein instant A is a single bond with a carbazole derivative with an instant A as ethylene or oxygen. Case law holds that the mere substitution of an equivalent (something equal in value or meaning, as taught by analogous prior art) is not an act of invention; where equivalency is known to the prior art, the substitution of one equivalent for another is not patentable. See *In re Ruff* 118 USPQ 343 (CCPA 1958).

Regarding claims 3 and 4, modified Hosokawa discloses all the claim limitations as set forth above. Additionally the reference discloses wherein the compound of formula (4) meets instant formula (1) may have an Ar^{12} and Ar^{13} are groups of formula (5) wherein q is 0 and 3, respectively, Ar^{14} is an aryl group, and Z is a tri-substituted phenyl group (columns 3 and 4) and discloses the phenyl as 1,3,5-substituted (columns 15 and 16). This corresponds wherein instant Ar_1 is m-phenylene and instant Ar_2- Ar_4 are each p-phenylenes. The reference also discloses wherein a phenylene binding with a carbazole (i.e. Ar_1) may be metal substituted with an instant R_7 as carbazole (column 21, compound 49). While Hosokawa does not specifically exemplify compound as described above, this does not negate a finding of obviousness under 35 USC 103 since a preferred embodiment such as an example is not controlling. Rather, all disclosures "including unpreferred embodiments" must be considered. *In re Lamberti* 192 USPQ 278, 280 (CCPA 1976) citing *In re Mills* 176 USPQ 196 (CCPA 1972). Therefore, it would have been obvious to one of ordinary skill in the art to utilize such a compound given that Hosokawa teaches each one to be suitable.

Additionally while the reference does not explicitly disclose wherein Ar_4 is meta substituted the compound would merely be a position isomer. Compounds which are positional isomers (compounds having the same radicals in physically different positions on the same nucleus) are generally of sufficiently close structural similarity that there is a presumed expectation that such compounds possess similar properties. *In re Wilder*, 563 F.2d 457, 195 USPQ 426 (CCPA 1977). See also *In re May*, 574 F.2d 1082, 197 USPQ 601 (CCPA 1978) (stereoisomers prima facie obvious). Therefore it would be obvious to one of ordinary skill in the art at the time of the invention to substitute Ar4 as a meta substituted phenylene instead of as a para phenylene. One of ordinary skill in the art would expect the compound to have similar properties and be suitable for the same purpose.

Regarding claims 10 and 11, modified Hosokawa discloses all the claim limitations as set forth above. Additionally the reference discloses wherein a reducing dopant is added to the interfacial region between the thin film layer and the cathodes (column 24, lines 56-60 and column 27, lines 35-39) and wherein the device further comprises an electron injection layer with nitrogen-containing derivative as an essential component between the light emitting layer and the cathode (column 24, lines 40-55 and column 27, lines 29-34).

12. Claims 1, 2, 4-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iwakuma et al. (WO 03/080761 A1), English equivalent US 2005/0158578 A1 relied upon.

Regarding claims 1, 2, 4-9, and 12, Iwakuma et al. discloses an organic electroluminescent device comprising a light-emitting layer with a phosphorescent metal complex [0044] between an anode and a cathode [0013]. The light-emitting layer is disclosed to comprise a carbazole derivative compound as a host material [0008]. The reference discloses the carbazole compound of formula (1) wherein Cz is phenylcarbazole and L is m-phenylene and p is 2 (0009]-[0012]). The reference discloses wherein all the phenylenes are meta substituted and wherein the first and last phenylene (instant Ar1 and Ar4) are para substituted (pages 4 and 5). The reference also discloses wherein first and last phenylene (Ar1 and Ar4) are meta substituted with additional carbazole groups (instant R1 and R7). While reference does not explicitly exemplify a compound as described above, this does not negate a finding of obviousness under 35 USC 103 since a preferred embodiment such as an example is not controlling. Rather, all disclosures "including unpreferred embodiments" must be considered. *In re Lamberti* 192 USPQ 278, 280 (CCPA 1976) citing *In re Mills* 176 USPQ 196 (CCPA 1972). Therefore, it would have been obvious to one of ordinary skill in the art to utilize such a compound given that the reference teaches each one to be suitable.

Regarding claims 10 and 11, modified Iwakuma et al. discloses all the claim limitations as set forth above. Additionally the reference discloses wherein a reducing dopant is added to the interfacial region between the thin film layer and the cathodes [0088] and wherein the device further comprises an electron injection layer with

nitrogen-containing derivative as an essential component between the light emitting layer and the cathode ([0054], [0055], and [0088]).

Response to Arguments

13. Applicant's arguments with respect to claim1-12 have been considered but are moot in view of the new ground(s) of rejection necessitated by amendment.

14. Applicant's arguments filed 22 December 2009 have been fully considered but they are not persuasive.

Regarding applicant's argument of unexpected results, it is well settled that evidence presented to rebut a prima facie case of obviousness must be commensurate in scope with the claims to which it pertains and that such evidence which is considerably narrower in scope than claimed subject matter is not sufficient to rebut a prima facie case of obviousness. *In re Dill*, 604 F.2d 1356, 1361, 202 USPQ805, 808 (CCPA 1979). Also see *In re Boesch*, 617 F.2d at 276, 205 USPQ at 219; *In re Lindner*, 457 F.2d 506, 508, 173 USPQ 356, 358 (CCPA 1972) and *In re Susi*, 440 F.2d 442, 169 USPQ 423 (CCPA 1971). As rejected claim 1 is significantly broader than examples in specification, which applicant cites as an example of unexpected results and which are limited to a comparison of compositions containing specific compounds with only Cz meeting instant formula (2a) where A is a single bond (i.e. carbazole) and having only phenyl or carbazole substituents (instant R_1-R_8), the evidentiary showing is far from being commensurate in scope with the degree of patent protection sought. *In re Kulling*,

897 F.2d 1147, 1149, 14 USPQ2d 1056, 1058 (fed. Cir. 1990) ("'[O]bjective evidence of nonobviousness must be commensurate in scope with the claims.'" (quoting *In re Lindner*, 457 F.2d 506, 508, 173 USPQ 356, 358 (CCPA 1972); *In re Dill*, 604 F.2d 1356, 1361, 202 USPQ 805, 808 (CCPA 1979) ("The evidence presented to rebut a prima facie case of obviousness must be commensurate in scope with the claims to which it pertains.").

Conclusion

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL WILSON whose telephone number is (571)

270-3882. The examiner can normally be reached on Monday-Thursday, 7:30-5:00PM EST, alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Larry Tarazano can be reached on (571) 272-1515. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

17. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. Lawrence Tarazano/
Supervisory Patent Examiner, Art Unit 1794

MHW